Claims:

1. A method of executing an inter-frequency handover of a UE connection in which the frequency of the uplink connection from the UE to a base station remains the same and the frequency of the downlink connection from said base station to said UE changes from a first downlink frequency to a second downlink frequency, comprising:

transmitting a request for said handover from said base station, the request containing information indicating the second downlink frequency and information indicating that the uplink frequency remains the same; and

in response to the request, maintaining the physical layer of the uplink connection while changing the downlink frequency from said first downlink frequency to said second downlink frequency.

2. A method in accordance with claim 1, wherein the information indicates a second downlink frequency which is in a different band than the first downlink frequency.

3. A method in accordance with claim 1, wherein downlink connection at the first downlink frequency and the downlink connection at the second downlink frequency both contain synchronization information.

4. A method in accordance with claim 3, wherein said synchronization information is used by the UE to save measurements and to accelerate said handover.

5. A method in accordance with claim 3, wherein said synchronization information includes system frame numbering.

6. A method in accordance with claim 3, wherein said synchronization information includes information indicating that the downlink connection at the second downlink frequency is chip and frame synchronized with the downlink connection at the first downlink frequency.

7. A method in accordance with claim 2, wherein said different band is an extension band which includes frequencies of at least 2.5 GHz.

8. A method in accordance with claim 1, wherein the first downlink connection and the second downlink connection have the same cell coverage.

9. A method in accordance with claim 1, wherein transmissions on the uplink connection are paused while the downlink connection is changed from the first downlink frequency to the second downlink frequency.

10. A method in accordance with claim 1, wherein transmissions on the uplink connection are continued while the downlink connection is changed from the first downlink frequency to the second downlink frequency

11. A method in accordance with claim 1, wherein a feedback control loop is discontinued during the handover and is resumed after the handover is completed.

12. A method in accordance with claim 1, wherein said base station maintains the processing resources related to said uplink connection during the execution of said handover

13. A method in accordance with claim 1, wherein said base station maintains the UL terrestrial connections towards the RNC related to said uplink connection during the execution of said handover

14. A method of executing an inter-frequency handover of a UE connection in which the frequency of the downlink connection from the UE to a base station remains the same and the frequency of the uplink connection from said base station to said UE changes from a first uplink frequency to a second uplink frequency, comprising:

transmitting a request for said handover from said base station, the request containing information indicating the second uplink frequency and information indicating that the downlink frequency remains the same; and

in response to the request, maintaining the physical layer of the downlink connection while changing the uplink frequency from said first uplink frequency to said second uplink frequency.

15. A method in accordance with claim 14, wherein the information indicates a second uplink frequency which is in a different band than the first uplink frequency.

16. A method in accordance with claim 14, wherein uplink connection at the first uplink frequency and the uplink connection at the second uplink frequency both contain synchronization information.

17. A method in accordance with claim 16, wherein said synchronization information is used by the UE to save measurements and to accelerate said handover.

18. A method in accordance with claim 16, wherein said synchronization information includes system frame numbering.

19. A method in accordance with claim 16, wherein said synchronization information includes information indicating that the downlink connection at the second downlink frequency is chip and frame synchronized with the downlink connection at the first downlink frequency.

20. A method in accordance with claim 15, wherein said different band is an extension band which includes frequencies of at least 2.5 GHz.